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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/762,050      | 01/16/2004  | Christoph Schilling  | NI 161              | 4473             |

7590 08/24/2005

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT PAPER NUMBER

1725

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/762,050

Applicant(s)

SCHILLING ET AL.

Examiner

Lynne Edmondson

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Waldron et al. (USPN 6227433 B1).

Waldron teaches a friction stir welding method comprising the steps of placing interlocking workpieces on top of each other and lowering the rotating pin tool toward the lowermost workpiece (col 3 lines 1-53 and figures 3 and 5). It is noted that the nature of the process is such that friction heat is generated which plasticizes the material of the workpieces, creating a fine microstructure, which is typically free of voids and oxides. The apparatus comprises a shoulder (38) and a pin (24).

3. Claims 1-6 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Murakami (USPN 6789722 B2).

Murakami teaches a friction stir welding method comprising the steps of placing interlocking workpieces on top of each other and lowering the rotating pin tool toward

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the lowermost workpiece and moving along the joint area (figures 1A, 1B, 4A and 4B and col 5 lines 15-65). It is noted that the nature of the process is such that friction heat is generated which plasticizes the material of the workpieces, creating a fine microstructure, which is typically free of voids and oxides. The apparatus comprises a shoulder (1) and a pin (3).

4. Claims 1-7 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Enomoto et al. (USPN 6344117 B2).

Enomoto teaches a friction stir welding method comprising the steps of placing interlocking workpieces on top of each other and lowering the rotating pin tool toward the lowermost workpiece and moving along the joint area (figures 3 and 4 and col 6 line 34 – col 7 line 20). It is noted that the nature of the process is such that friction heat is generated which plasticizes the material of the workpieces, creating a fine microstructure, which is typically free of voids and oxides. The apparatus comprises a shoulder (11) and a pin (12). The pieces are joined in form locking manner (col 8 lines 30-39 and figure 6).

5. Claims 1-8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Trapp et al. (USPN 6676008 B1).

Trapp teaches a friction stir welding method comprising the steps of placing interlocking workpieces on top of each other and lowering the rotating pin tool toward the lowermost workpiece and moving along the joint area (figure 2, col 1 lines 1-65). It

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is noted that the nature of the process is such that friction heat is generated which plasticizes the material of the workpieces, creating a fine microstructure, which is typically free of voids and oxides. The apparatus comprises a shoulder (24) and a pin (14). The pieces are joined in form locking manner with plasticized material introduced into the lower workpiece (figures 2-6, col 4 line 66 – col 5 line 11 and col 5 line 41 – col 6 line 16 ).

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Aken et al.(US 2005/0087582 A1), Matsumoto et al. (JPN 2002-35963-A, interlocked joint), Waldron et al. (USPN 6367681 B1), White et al. (USPN 6247633 B1), Nelson et al. (USPN 6648206 B2, wear layer), Stevenson et al. (US 2004/0129762 A1, paragraph 2, nature of process to produce fine microstructure free of oxides and porosity), Gendoh et al. (US 2002/0158109, interlocked joint) and Duncan, Jr. (USPN 6726084, apparatus with wear layer on pin).

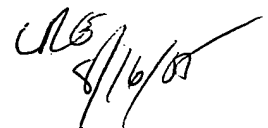
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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson  
Primary Examiner  
Art Unit 1725



LRE